SOV/113-58-11-2/16

AUTHORS: Novikov, I.I., Reznikov, M.L.

TITLE: Modernized YaMZ Engines (Modernizirovannyye dvigateli YaMZ)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 11, pp 3 - 4 (USSR)

ABSTRACT: The Yaroslavl' Motor Plant, in 1957, modernized the YaMZ two-cycle automobile engines to increase their service life and economical indices. This modernization included the cylinder sleeves (table 1 for which NAMI had worked out a new compo-sition of the cast iron, which is given in addition to the description of the casting method. The new oil system differs from the former by the addition of a supplementary regulator valve. A gear pump (fig. 1) has replaced the former rotary fuel pump. The former fuel filter elements of starch, for the fine removal of impurities in the fuel and oil, were ex-changed for powdered bakelite. The former sliding friction bearing of the intermediate timing gear was replaced by a rolling friction bearing (fig. 2). The labyrinth butt gas-kets of the rotors of the supercharger were exchanged for rubber-reinforced gaskets. A supplementary resilient coupling has been added to the free end of the splined shaft of the supercharger drive (fig. 3). In the new design, the front

Card 1/2

Modernized YaMZ Engines

SOV/11-58-11-2/16

gasket of the crankshaft is directly on the shaft, while the former intermediate bush has been removed. The positive test results of the modernized engines are summarized and comparative characteristics (fig. 4) are presented for the serial YaMZ-106A and the modernized YaMZ-M206A. There are 2 diagrams, 2 graphs, 1 table, and 2 Soviet references.

ASSOCIATION: Yaroslavskiy motorn'y zavod (The Yaroslavl' Motor Plant)

1. Internal combustion engines--Design   2. Internal combustion engines--Equipment   3. Internal combustion engines--Test results

Card 2/2

NOVIKOV, P. I.

NOVIKOV, P. I.

USSR/Chemistry - Detection of Potassium

FD 166

Card 1/1

Author   : Shpak, V. A., and Novikov, P. I.

Title   : Use of the properties of the radioactive isotope of potassium for the deter-
              mination of the potassium content in samples and directly in rock occur-
              rences.

Periodical : Khim. prom. 2, 11-1 (12-14), April-May 19--

Abstract   : Describe work on the detection and determination of potassium at a natural
              potassium salt deposit by measuring the beta-radiation and gamma-radiation
              emitted by the radioactive isotope. Illustrated by 2 graphs and a chart
              listing experimental results.

9(6)   SOV/64-59-1-21/24
AUTHORS: Kudryavtsev, Yu. I., Novikov, P. I.

TITLE: Determining the Concentration of Potassium in Potassium
                Minerals by the Gamma Method (Opredeleniye kontsentratsii
                kaliya v kaliynoy rude s pomoshch'yu gamma-metoda)

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 1, pp 88-89 (USSR)

ABSTRACT: Instead of the time-consuming chemical method. the gamma
                determination based on natural γ-radiation of potassium
                may be used to control the content of potassium. The "B" plant
                fed by way of the alternating-current rectifier ST-200. was
                used as a recorder in the present case. The mineral sample
                was placed into an aluminum cylinder which was contained in
                a larger aluminum cylinder in a cast-iron vessel. 20 VS-9
                counters were installed in the space between the two alu
                minum cylinders. The positive pole of the high voltage was
                earthed, and the negative pole was connected with the counter
                cathodes. The negative impulses were conducted to the lamp
                BGS. It is pointed out that the average density of the sample
                affects the number of impulses. The following should be con
                sidered in measurements: 1) The content of other radioactive
Card 1/2   elements, 2) The time of measurement (at least 30 minutes

SOV/64-59-1-21/24

Determining the Concentration of Potassium in Potassium Minera.e by the
Gamma Method

at about 15% K), 3) The content of potassium is determined
without taking into account the humidity of the sample, and
4) The device should be adjusted once a month and checked
daily. There is 1 figure.

Card 2/2

NOVIKOV, P.I.

Using gamma-log diagrams in a quantitative determination of
the potassium in potassium ores. Sbor. st. MG10N no.1:100-106
'62.   (MIRA 16:3)
                (Radioactive prospecting) (Potassium)

NOVIKOV, P.I.

Calculating the factors affecting the accuracy of the measurement
in using the beta method to determine the potassium content of
potassium rocks. Sbor. st. MGiON no.1:134-142 '62.   (MIRA 16:3)
        (Radioactive prospecting) (Potassium)

AFONINA, L.N.; ZASLAVSKAYA, A.G.; NOVIKOV, P.I.

Case of ascariasis with an unusual course. Med. paraz.i paraz.bol.
34 no.4:482-483 Jl-Ag '65.

(MIRA 18:12)

1. Kafedra gospital'noy terapii Donetskogo meditsinskogo
instituta i gorodskoy bol'nitsy Nr.32, Donetska. Submitted
May 22, 1963.

18(5)   SOV/128-59-5-9/35

AUTHOR: Vasilevskiy, P.F. and Novikov, P.L., Canditates of
                Technical Sciences, and Shiryayev, V.V., Engineer

TITLE: Technological Control of Cooling of large size Steel
                Castings in Sand Molds

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 5, pp 18-19 (USSR)

ABSTRACT: The manufacturing of a chromium aluminum thermo couple
                for exact control of temperature when cooling large
                size steel castings in sand molds is described. This
                thermo couple can be used up to $800-900^\circ C$. According
                to Fig. (3) it is adjusted in the sand mold. It con-
                sists Fig.(2) of thermo electrodes of 1,2, or 3 mm
                thickness which are isolated by porcelaine covers (4)
                and a quartz cover (3), wrapped by an interior (1)
                and exterior (2) jacket of steel. (See also Fig. 1).
                In the interior is a gauze tube. Furthermore, cooling
                is achieved by coiled wire. Fig. (4) shows the tem-
                perature curve when cooling a casting of 85 tons by
Card 1/2   a tungsten molybdenum thermo couple of same construc-

SOV/129-6-5-9/35

Technological Control of Cooling of large size Steel Castings
in Sand Molds

          tion. There are 1 photograph and 3 diagrams

Card 2/2

NOVIKOV, P.L.

Treatment of trichinosis with ACTH. Zdrav. Bel. 7 no.3:61 Mr '61.
(MIRA 14:3)

1. Iz infektsionnogo otdeleniya Mogilovskoy oblastnoy bol'nitsy
(zaveduyushchiy otdeleniyem N.L.Sandler, glavnyy vrach S.T.Il'in).
(TRICHINA AND TRICHINOSIS)   (ACTH)

NOVIKOV, P.L.

Infectious mononucleosis with pronounced hepatolienal syndrome
and generalized lymphadenopathy.   Zdrav.Bel. 8 no.7:78 Jl '62.
(MIRA 15:11)
1. Iz Mogilevskoy gorodskoy infektsionnoy bol'nitsy (glavnyy
vrach V.K.Skakun).
(MONONUCLEOSIS)

NOVIKOV, P.M., inzhener.

Experience with building precast reinforced concrete bridges.
Avt. dor. 19 no.7:7-8 Jl '56.   (MLRA 9:10)

(Bridges, Concrete)

38174. NOVIKOV, P. M.

Opyt krupnomasshtabnogo kartirovaniya pochv. Trudy Pochv. in-ta im.
Dokuchayeva, t. XXX, 1949, s. 299-309, s kart.

B NOVIKOV, P.M.

New Developments in the Gravimetric Method of Mineral Classification. (In Russian) P. M. Novikov. Pochvovedenie (Soil Science) Apr 1950 p 234-238

Describes special modification of the Mohr centrifuge especially applicable to soil analysis. Special feature of this modification is the new vessel for separating the light fraction. Apparatus is diagrammed and optimum operating conditions are indicated. Results of analysis using single and double decanting of light fractions are tabulated.

Soil Inst. im V. V. Dokuchayev, AS USSR

(CA 47 no. 15: 7711 '53)

NOVIKOV, P.M.

[The genesis and evolution of the soils in the Zeya-Bureya
Valley. P. M. Novikov. *Pochvovedenie* 1955, No. 8, 13–25.
AG —No profile development is apparent in the valley soils, as
evidenced by the lack of an illuviation horizon, absence of
variations in the mech. compn. of the respective separates,
no movement of products of hydrolytic reactions, and no
other chem. indexes which might indicate horizon differentia-
tion. The SiO_2 coatings found throughout the profile are
not of the colloid type as tested by the Gedroitz KOH-extn.
method. Still, the exchange complex has some Na. It is
suggested that under the climatic conditions of Amur River
region this area represents a naturally drained bog with an
inflow of alluvial material.   J. S. Joffe.

NIKOLAYEV, V. A.; NOVIKOV, P. P.

Automation of the delivery on the conveyor of the brake drum
and of its installation on the rear axle. Avt. prom. 28 no.6:
37 Je '62.   (MIRA 16:4)

1. Moskovskiy avtozavod imeni Likhacheva.

(Moscow--Automobile industry)   (Automation)

NOVIKOV, P. S.

O logicheskikh paradoksakh. DAN, 56 (1947), 451-455.
Sur les fonctions implicites mesurables (B), Fund. math, 7 (1931), 2-15.
Ob odnom svoystve analiticheskikh mnozhestv. DAN, 2 (1934), 273-276.
O nekotorykh sistemakh mnozhestv, invariantnykh po otnosheniyu k A-operatsii.
DAN, 3 (1934), 557-560.
Obobshcheniye vtorogo printsipa otdelimosti. DAN, 4 (1934), 8-11.
Sur la separabilite des ensembles projectifs du seconde classe. Fund. Math, 25 (1935)
459-466.
O vzaimootnoshenii vtorogo klassa proyektivnykh mnozhestv i proyektsiy uniformnykh
analiticheskikh dopolneniy. IAN, SER, MATEM (1937), 231-252.
Otdelimost' s-mnozhestv. IAN, SER, MATEM (1937), 253-264.
O proyektsiyakh nekotorykh v-mnozhestv. DAN, 23 (1939), 863-864.
O moshchnosti mnozhestva svyaznykh komponent a-mnozhestv, DAN, 56 (1947), 787-790;

SO: Mathematics in the USSR, 1917-1947
      edited by Kurosh, A. G.,
      Markushevich, A. I.
      Rashevskiy, P. K.
      Moscow-Leningrad, 1948

NOVIKOV, P. S.

Novikov, P. S. On logical paradoxes. Doklady Akad. Nauk SSSR (N.S.) 56, 451–453 (1947). (Russian)

As D. A. Bochvar has shown [Rec. Math. [Mat. Sbornik] N.S. 15 (57), 369–384 (1944); these Rev. 7, 46], the calculus of predicates without distinction of types (system A) is non-contradictory if no definitions of individual predicates are admitted. A definition of a predicate may be replaced by an additional axiom of the form (B):

$$(Ep)(x_1) \cdots (x_n)[p(x_1, \cdots, x_n) \sim G(x_1, \cdots, x_n)],$$

where G contains no free variables other than $x_1, \cdots, x_n$. An occurrence of a variable in a formula is called interior if it stands in the field of an elementary predicate; in the other case the occurrence is exterior. A function G is said to satisfy condition C if each variable has in G either only interior or only exterior occurrences. Now the system A remains non-contradictory after the adjunction of a finite number of axioms (B), provided every function G in them satisfies condition C. A system originating from A by such an adjunction is a system (T). Another form of an axiom defining a predicate p is (D): $p(x_1, \cdots, x_n) \sim G(x_1, \cdots, x_n)$; this is of the form (S) if G satisfies condition C. If $n = 1$, G may be written in the form $G_1.x(x) . \vee .G_2.x(x) . \vee .G_3$; by simple conventions this form becomes univocal. Then $G_1 \vee G_2 \vee G_3$ is called the "paradoxical consequence" of (D). A system (T) remains noncontradictory after the adjunction of a finite number of axioms of the form (S), provided each of their paradoxical consequences is derivable in a suitable system (T). For a predicate of one variable a necessary and sufficient condition that it leads to contradiction is derived. No elaborate proofs are given.   *A. Heyting* (Amsterdam).

Novikov, P. S.   The power of the set of connected com-
ponents of an A-set.   Doklady Akad. Nauk SSSR (N.S.)
56, 787–790 (1947).   (Russian)
    The following theorem is proved. Let E be any analytic
set in n-dimensional Euclidean space. Then the cardinal
number of the family of all connected components of E can
be only a finite number, $\aleph_0$, or $2^{\aleph_0}$. The problem of deter-
mining possible cardinal numbers for the family of con-
nected components consisting of exactly one point is men-
tioned and is left open.   E. Hewitt (Chicago, Ill.).

Source: Mathematical Reviews,   1948, Vol. 9, No. 3

NOVIKOV, P. C.   IA 9T47

USSR/Mathematics   May 1947

"Concerning Logical Paradoxes," P. C. Novikov

"Doklady Akademii Nauk SSSR" Vol LVI, No 5

On the analogy afforded by the theory of numbers,
the author finds comparable contradictions in
logistics when infinite elements are introduced.

9T47

NOVIKOV, P.S.

Novikov, P. S. On classes of regularity. Doklady Akad. Nauk SSSR (N.S) 64, 203–206 (1949). (Russian)

In an earlier paper [Rec. Math. (N.S. Sbornik) vol. 12(54), 231–261 (1943); these Rev. 5, 197] the author defined "classes of regularity" in certain logics containing infinite sums and products. He now gives definitions suitable for finite systems, and applies them to independence proofs. In this paper the logical system is the predicate calculus, without quantifiers for predicates, but with symbols for object-functions as well as object-individuals. An "elementary formula" is one containing no logical operations [i.e., presumably, a proposition-symbol or a predicate-symbol with arbitrary terms as arguments]; and an "elementary sum" is a logical sum of elementary formulae or their negations. Any class of elementary sums is a "class of primitive formulae," provided that it is closed under the operation of replacing an object-variable by any term and that it contains all elementary sums in which one sum is the negation of another. The "class of regularity" is determined by a class Π of primitive formulae as the set of all formulae, the reduced form [see below] of which can be transformed into a member of Π by repeated application of the following three operations. Let the given formula be the form $\Pi_1 \Sigma_1 \mathfrak{A}_1$. Operation 1: if an $\mathfrak{A}_1$ is $(x)\mathfrak{A}(x)$, omit the quantifier and replace x by a new free variable; Operation 2: if $\mathfrak{A}_1$ is $(Ex)\mathfrak{A}(x)$, omit (Ex) and replace x by an arbitrary term, subject to avoiding accidental clashes; Operation 3: apply the distributive law $\mathfrak{A} \& (\mathfrak{B} \vee \mathfrak{C})$ of the algebra of logic. By the "reduced form" of a formula the author appears to mean the form containing only $\&$, $\vee$, $\sim$ and quantifiers, in which all negations are applied directly to propositional and predicate-variables (though he says "containing no logical operations except $\&$ and $\sim$"). The following theorem is announced [without proof]. Every formula deducible in the predicate calculus from the formulae of a class of regularity belongs to that class.

If we take the system to be the predicate calculus with the axioms of arithmetic adjoined (including recursive definitions) and as a class of primitive formulae the class of all provable elementary logical sums, the class of regularity contains all the axioms except the induction axiom, proving its independence, and this remains true if further (consistent) axioms are adjoined not containing predicate variables. These, as the author notes, are not new results, but new applications are promised in a further paper. The notion of class of regularity can be extended to other logical systems, e.g., the simple theory of types.

M. H. A. Newman (Manchester)

1. NOVIKOV, P. S.; KE███SH, L. V.

2. USSR (600)

4. Physics and Mathematics

7. Theory of Functions of a Real Variable, I. P. Natanson.
    (Moscow-Leningrad, State Technical Press, 1950).
    Reviewed by P. S. Novikov and L. V. Keldysh, Sov. Kniga
    No. 8, 1951.

9. ███ Report U-3081, 16 Jan. 1953, Unclassified.

NOVIKOV, P. S.

1. KELDYSH, L. V. ; NOVI~~~~~, P. S.

2. USSR (600)

4. Physics and Mathematics

7. Handbook on Operational Calculus, V. A. Ditkin, and P. I. Kuznetsov.
    (Fundamentals of the theory and tables of formulas. Moscow-Leningrad
    State Technical Press, 1951.

9. ▮▮ Report U-3081, 16 Jan. 1953. Unclassified.

NOVIKOV, P. S.

*Novikov, P. S. · On the uncontradictability of certain propositions of the descriptive theory of sets.' ' Trudy Mat. Inst. Steklov., v. 38, pp. 279-316. Izdat. Akad. Nauk SSSR, Moscow, 1951. (Russian) 20 rubles.

In 1940 Gödel published a proof that the axiom of choice and the generalized continuum hypothesis are consistent with the other axioms of set theory if these axioms themselves are consistent. [See his "The consistency of the continuum hypothesis" [Princeton, 1940; these Rev. 2, 66]. The result had been announced as early as 1938.] He did this by formulating these other axioms of set theory as a system Σ and then showing that Σ admits a model Δ for which the axioms in question are derivable in Σ. His result

may be stated thus: The axioms in question are Σ-consistent. In the present ⬤er the author similarly proves the Σ-consistency of certain propositions in the theory of analytic sets [see N. Lusin, Leçons sur les ensembles analytiques et leurs applications, Gauthier-Villars, Paris, 1930]. The theory of analytic sets can be incorporated in Σ simply by taking the fundamental Baire set I to be the class of all infinite sequences of natural numbers. By an ingenious and complicated correspondence between certain sets of Σ and certain elements of I the author is able to establish an isomorphism between a system represented in I and a portion of Gödel's model Δ. The propositions when Σ-consistency is established by this method include the following: the existence of a non-countable CA set not containing any perfect subset; the existence of a B_3 set not measurable in the sense of Lebesgue; and the existence of a function of class A_3 defined for all elements of I and discontinuous on every perfect set. (The author states that some of these propositions have been previously asserted without proof by Gödel, but he does not say where and the reviewer does not know.) A similar result concerning the separability of projective sets of higher classes is announced for later publication.

H. B. Curry (State College, Pa.).

IA 245T61

NOVIKHOV, P. S.

USSR/Geophysics - Hydrometeorological   Nov 52
                    Instruments

"The Quality of Instruments," P. S Novikhov,
Hydrometeorological Sta, Yelets

"Meteorol i Gidrol" No 11, p 52

Notes that defects exist in observational in-
struments. Suggests that departments of tech-
nological control of factories and offices give
this problem serious attention.

                                    245T61

NOVIKOV, P. S.

PA 227760

USSR/Mathematics - Modern Algebra,   1 Aug 52
        Circular Systems

"Algorithmic Irresolvability of the Problem of Identity," P.S. Novikov

"Dok Ak Nauk SSSR" Vol 85, No 4, pp 709-712

Considers G an arbitrary group given by a finite number of operators connected by a finite number of defining relations. The problem of identity is stated thus: required to show an algorithm which permits one to establish for any 2 elements groups no matter whether they are equal or not. Demonstrates the theorem that there exist groups for which it is impossible to construct an algorithm that solves the identity problem. Submitted by Acad I.M. Vinogradov 31 May 52.

227760

LUZIN, Nikolay Nikolayevich, 1883-1950.; KELDYSH, L.V., redaktor;
NOVIKOV, P.S., redaktor.

[Lectures on analytic sets and their applications] Lektsii ob
analiticheskikh mnozhestvakh i ikh prilozheniiakh. Moskva, Gos.
izd-vo tekhniko-teoret. lit-ry, 1953. 359 p. (MIRA 6:12)
(Functions, Analytic)

USSR/Mathematics - Set Theory   Mar/Apr 53

"N. N. Luzin's Works in the Field of Discrete Theory of Sets," L. V. Keldysh and P. S. Novikov

Usp Mat. Nauk, Vol 8, No 2(54), pp 93-104

List 47 works of Luzin in subject field, most of them appearing in French journals between 1914 and 1935; two Russian-language reports appeared in 1945 and 1947.

250T85

KELDIS, L. V. and NOVIKOV, P. S.

    "The Work of N. N. Luzin in the Field of the Descriptive Theory of Multiplicities (Quantities?)", Usp Mat Nauk, Vol 8, No 3, pp 3-20, 1953

XXXV

NOVIKOV, P. S.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Novikov, P. S.	"The Incontrovert...l...t of Certain St...ents of the Descriptive ...or...of ...ts"	...sow State...n...v...ty iment...A. V. L...nos...v; ...oscow Mathem...cal Soc...ty

SO: W-30604, 7 July 1954

NOVIKOV, P. S.

Novikov, P. S. Unsolvability of the conjugacy problem in the theory of groups. Izv. Akad. Nauk SSSR. Ser. Mat. 18 (1954), 485–524. (Russian)

In a previous note [Dokl. Akad. Nauk SSSR (N.S.) 85 (1952), 709–712; MR 14, 618] the author has sketched a proof of the algorithmic unsolvability of the word problem in groups. A full proof appears in the monograph reviewed below. Now it follows trivially that in the group constructed there the conjugacy problem is also unsolvable. Nevertheless the present paper contains a separate proof of this result, because it is considerably simpler and because the number of generators and defining relations for the group with an unsolvable conjugacy problem is much smaller than for the group with an unsolvable word problem. The present construction is again based on Post's systems of "productions" [Amer. J. Math. 65 (1943), 197–215; MR 4, 209] which are transformations of the schemes: $A_i X \to X B_i$ and $X B_i \to A_i X$, where X is an arbitrary word in the alphabet under consideration, and where (A_i, B_i) are a finite number of preassigned pairs of fixed words in the alphabet. These transformations introduce an equivalence relation into this set of words which will be denoted as an equality. Now Post [loc. cit; see also Bull. Amer. Math. Soc. 52 (1946), 264–268; MR 7, 405; and Markov, Dokl. Akad. Nauk SSSR (N.S.) 58 (1947), 353–356; MR 9, 321] has constructed a system of productions for which

Novikov, P. S.

there exists no algorithm to decide whether two given words are equal in the system or not. The link between the Post systems and groups is established by the following theorem: Whatever system of productions 𝔓 is given, there exists a group 𝔄 with a finite number of generators and of defining relations such that with every word X in 𝔓 there is associated a word $\Phi(X)$ in 𝔄, where the mapping Φ has the following properties: 1. The construction of $\Phi(X)$ from X is algorithmic. 2. Two words $\Phi(X)$ and $\Phi(Y)$ are conjugate in 𝔄 if and only if X and Y are equal in 𝔓. The construction of 𝔄 on the basis of 𝔓 is algorithmically effective, but the intricate combinatorial details of the process which make up the bulk of the paper are, unfortunately, too numerous to be even sketched here. Finally, for the systems 𝔓 with a known unsolvable equality problem the associated groups 𝔄 have an unsolvable conjugacy problem. The author mentions a consequence of his result: Since every finitely presented group is the fundamental group of a two-dimensional polyhedron, and since the homotopy problem for the polyhedron is equivalent to the conjugacy problem in the group, it is possible to construct a two-dimensional polyhedron for which the homotopy problem is unsolvable.   *K. A. Hirsch* (London).

★Novikov, P. S. Ob algoritmičeskoľ nerazrešimosti problemy toždestva slov v teorii grupp. [On the algorithmic unsolvability of the word problem in group

$7.//O$

Novikov, P. S.

theory.] Trudy ,Mat. Inst. im. Steklov. no. 44.
Izdat. Akad. Nauk SSSR, Moscow, 1955, 143 pp.
6.30 rubles.

The following theorem is proved: There exists a group
defined by a finite system of relations between the
generators (the number of which is also finite) such that
it is impossible to find an algorithm for deciding the
identity of group elements given by products of powers of
the generators.

An essential role in the proof is played by calculi of
various types. Each of them deals with words in some
alphabet and allows one to derive according to definite
rules of procedure the equality of such words. (The
equality of words does not always turn out to be symme-
tric, but is always reflexive and transitive.) In particular
the following calculi are used.

Semigroups (with cancellation). In an arbitrary alphabet
A there is given a system of pairs of words A_i, B_i ($i =
1, \cdots, n$). The equations

(1) $A_i = B_i$ ($i = 1, \cdots, n$)

are taken as the initial ones. Other equations are sub-
sequently derived from them according to the rules

$$\frac{u = v}{XuY = XvY}, \quad \frac{Xu = Xv}{u = v}, \quad \frac{uX = vX}{u = v}, \quad \frac{u = v}{v = u}, \quad \frac{u = v, v = w}{u = w}.$$

Here u, v, X, Y are words in the alphabet A. Each rule
allows one to derive the equation under the horizontal bar.

Novikov, P S.

from the equation (or equations) above this bar. We shall call the resulting calculus a semigroup on the alphabet A, defined by the equations (1).

Groups. Two alphabets with the same number of letters are given: a "positive" alphabet A and a "negative" alphabet A⁻. A one-to-one correspondence is set up between them. The letter of the alphabet A⁻ corresponding to a letter ξ of the alphabet A is called the inverse element to ξ and is designated by ξ^{-1}. A system of word pairs A_i, B_i ($i=1, \cdots, n$) is given in the alphabet $A \cup A^-$. One says that the word v is obtained from the word u by an elementary step if there are words X and Y in $A \cup A^-$ such that at least one of the following six conditions is satisfied:

1) there is an i such that $u \equiv XA_iY$, $v \equiv XB_iY$;

2) there is an i such that $u \equiv XB_iY$, $v \equiv XA_iY$;

3) there is a letter ξ in A such that $u \equiv X\xi\xi^{-1}Y$, $v \equiv XY$;

4) there is a letter ξ in A such that $u \equiv X\xi^{-1}\xi Y$, $v \equiv XY$;

5) there is a letter ξ in A such that $u \equiv XY$, $v \equiv X\xi\xi^{-1}Y$;

6) there is a letter ξ in A such that $u \equiv XY$, $v \equiv X\xi^{-1}\xi Y$.

Here the symbol "$\equiv$" indicates identity of the words. The equality $u=v$ is considered as derivable if there exists a series of words $u_0, \cdots, u_m$ ($m \geq 0$) such that $u \equiv u_0$, $v \equiv u_m$ and such that for $0 < i \leq m$ the word u_i is obtained

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from the word u_{i-1} by an elementary step. We shall call the calculus obtained in this way a *group on the alphabet* $A \cup A^-$, defined by the relations (1).

Systems of type B. Their definition differs from that of groups only in that condition 6) is discarded in the definition of an elementary step.

Establishment of a series of connections between the calculi of various types plays an essential role. This makes it possible to reduce problems of deducibility of equations in calculi of one type to problems of deducibility of equations in appropriate calculi of another type. As a result one succeeds in constructing for an arbitrary semigroup $\mathfrak{R}$ a group $\mathfrak{R}_1$ such that the problem of deducibility of equations in $\mathfrak{R}$ is reduced to the problem of deducibility of equations in $\mathfrak{R}_1$. If one now takes for $\mathfrak{R}$ the semigroup constructed by Turing [Ann. of Math. (2) 52 (1950), 491–505; MR 12, 239] for which the problem of deducibility of equations is unsolvable, then $\mathfrak{R}_1$ is a group with an unsolvable "word problem". These constructions run as follows.

Let $\mathfrak{R}$ be a semigroup on the alphabet A defined by the relations (1). Let us construct a calculus $\mathfrak{R}^0$ of type B in the following manner. Each letter ξ of A is made to correspond to a letter $\bar{\xi}$ which we shall call the image of ξ. The images must be different from the letters of A and from each other. They form an alphabet of images $\bar{A}$

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containing the same number of letters as A. We also introduce a letter τ not belonging to the alphabet $A \cup \dot{A}$. As a positive alphabet in the calculus $\mathfrak{R}^0$ we take an alphabet B equal to $A \cup \dot{A} \cup (\tau)$. A negative alphabet B⁻ of the calculus $\mathfrak{R}^0$ is introduced by setting up for each letter η of B a new letter η^{-1}. As a system of defining relations we take the system consisting of all equations (1) and all equations

$$\xi\tau = \dot{\xi}\tau, \quad \dot{\xi}\eta = \eta\dot{\xi}.$$

where ξ and η are letters of the alphabet A. There is the following connection between the problems of deducibility of equations in the calculi $\mathfrak{R}$ and $\mathfrak{R}^0$ (Theorem 4 of chap. VI).

I. If u and v are words in the alphabet A, then the equation $u = v$ is deducible in $\mathfrak{R}$ if and only if $u\tau = v\tau$ is deducible in $\mathfrak{R}^0$.

Let $\mathfrak{B}$ be a calculus of type B with a pair of alphabets Γ, Γ^- defined by the equations

(2) $C_i = D_i \ (i = 1, \cdots, r)$,

where C_i and D_i are words in the alphabet Γ. Let us construct a second calculus $\mathfrak{B}'$ of type B in the following manner. We introduce the letters

(3) $\lambda_i, \nu_i, d_i, \mu_{1i}, \mu_{1i}, \mu_{2i}, \mu_{2i}, \varrho_i, \bar{\varrho}_i, l_{\xi i}, p \ (i = 1, \cdots, r; \xi \in \Gamma)$,

different from each other and not belonging to the alphabet $\Gamma \cup \Gamma^-$. The letters $l_{\xi i}$ are introduced for each letter ξ of

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the alphabet Γ and for each i from 1 to r. Let us now introduce for each of the new letters η an inverse letter η^{-1} such that these letters are different from each other, from the letters of the alphabet $\Gamma \cup \Gamma^-$ and from all letters in (3). The letters of the alphabet $\Gamma \cup \Gamma^-$ and all the introduced letters form the alphabet of the calculus $\mathfrak{B}$ and split into positive and negative alphabets Л and Л^-. This calculus is defined by the equations.

(4) $\quad d\lambda_i C_i = \nu_{\mu_1 i \varrho_i} d\mu_{2i}, \quad d_i\lambda_i D_i = \nu_{\mu_1 i \tilde{\varrho}_i} d\mu_{2i},$

(5) $\qquad\qquad d_i \xi = \xi d_i,$

(6) $\qquad \mu_{1i}\xi = \xi\mu_{1i}l_{it}, \quad \tilde{\mu}_{1i}\xi = \xi\tilde{\mu}_{1i}l_{it}$

(7) $\qquad\qquad l_{it}\eta = \eta l_{it}$

(8) $\qquad \mu_{2i}\xi = \xi l_{it}\mu_{2i}, \quad \mu_{2i}\xi = \xi l_{it}\tilde{\mu}_{2i},$

(9) $\qquad\qquad \varrho_i\xi = \xi\varrho_i^p, \quad \tilde{\varrho}_i\xi = \xi\tilde{\varrho}_i^p;$

(10) $\qquad l_{it}\mu_{2i}p = \mu_{2i}p, \quad l_{it}\mu_{2i}p = \tilde{\mu}_{2i}p,$

(11) $\qquad l_{it}d\mu_{2i}p = d\mu_{2i}p, \quad l_{it}d\tilde{\mu}_{2i}p = d\tilde{\mu}_{2i}p,$

(12) $\qquad \varrho_i d\mu_{2i}p = d\mu_{2i}p, \quad \tilde{\varrho}_i d\tilde{\mu}_{2i}p = d\tilde{\mu}_{2i}p,$

(13) $\qquad\qquad \mu_{1i}d\mu_{2i}p = \tilde{\mu}_{1i}d\tilde{\mu}_{2i}p,$

where i takes the values $1, \cdots, r$ and ξ and η are arbitrary letters of Γ. The following connection holds between the problems of deducibility of equations in the calculi $\mathfrak{B}$ and $\mathfrak{B}'$ (Theorem 1 of chap. VI).

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Novikov, P.S.

II. If u and v are words in the alphabet Γ, then the equation $u=v$ is deducible in the calculus $\mathfrak{B}$ if and only if $up=vp$ is deducible in $\mathfrak{B}'$. Let us further construct a group $\mathfrak{B}^+$ in the following manner. For each letter ξ of Π, different from p, we introduce a new letter ξ^+ which we call the dual of ξ. Moreover, different letters are to have different duals. By the dual of a word X in the alphabet $\Pi \backslash \{p\}$ we shall mean the word obtained from X by inverting the order of the letters and replacing all letters by their duals. By adjoining to Π the duals of all its letters other than p, we obtain the positive alphabet E of the group $\mathfrak{B}^+$. We also introduce the letters ξ^{+-1} inverse to the duals. Adjoining them to the alphabet Π^-, we obtain the negative alphabet E^- of the group $\mathfrak{B}^+$. This group is defined by a system of equations obtained in the following way: to equations (4)–(9) adjoin the equations obtained from them by replacing both sides of each equation by their duals; then (in place of equations (10)–(13)) adjoin the equations

$$l_{i}q_{2i}p\mu_{2i}{}^{+}l_{ii}{}^{+}=\mu_{2i}p\mu_{2i}{}^{+}, \ l_{ii}\tilde{\mu}_{2i}p\tilde{\mu}_{2i}{}^{+}l_{ii}=\tilde{\mu}_{2i}p\tilde{\mu}_{2i}{}^{+},$$

$$l_{i}d_{i}\mu_{i}q_{2i}p\mu_{2i}{}^{+}d_{i}{}^{+}l_{ii}{}^{+}=d_{i}q_{3i}p\mu_{2i}{}^{+}d_{i}{}^{+},$$

$$l_{i}d_{i}\tilde{\mu}_{2i}p\tilde{\mu}_{2i}{}^{+}d_{i}{}^{+}l_{ii}{}^{+}=d_{i}\tilde{\mu}_{2i}p\tilde{\mu}_{2i}{}^{+}d_{i}{}^{+},$$

$$q_{i}d_{i}q_{2i}p\mu_{2i}{}^{+}d_{i}{}^{+}q_{i}{}^{+}=d_{i}q_{2i}p\mu_{2i}{}^{+}d_{i}{}^{+},$$

$$\tilde{q}_{i}d_{i}\tilde{\mu}_{2i}p\tilde{\mu}_{2i}{}^{+}d_{i}{}^{+}q_{i}{}^{+}=d_{i}\tilde{\mu}_{2i}p\mu_{2i}{}^{+}d_{i}{}^{+},$$

$$\mu_{1i}d_{i}\mu_{2i}{}^{+}d_{i}{}^{+}\mu_{1i}{}^{+}=\tilde{\mu}_{1i}d_{i}\tilde{\mu}_{2i}p\tilde{\mu}_{2i}{}^{+}d_{i}{}^{+}\tilde{\mu}_{1i}{}^{+}.$$

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Novikov, P.S.

We now construct the group $\mathfrak{V}'^+$ from the calculus $\mathfrak{V}'$ in the same way that the group $\mathfrak{V}^+$ was obtained from the calculus $\mathfrak{V}$. This means that the role of the positive alphabet of the calculus $\mathfrak{V}$ will be played by the positive alphabet of the calculus $\mathfrak{V}'$; the role of equations (4)–(13), the right and left sides of which are words in the alphabet Π; the role of r by the number of the equations (4)–(13), which we designate by r^*. The role of the letters (3) must now be played by the new letters

$$\lambda_i{}^*, \gamma_i{}^*, d_i{}^*, \mu_{1i}{}^*, \bar{\mu}_{1i}{}^*, \mu_{2i}{}^*, \mu_{2i}{}^*, \varrho_i{}^*, \bar{\varrho}_i{}^*, l_{i1}{}^*, p^*$$

$$(i = 1, \cdots, r^*; \xi \in \Pi),$$

not belonging to the alphabet Π.

The following connection holds between the problems of deducibility of equations in the calculi $\mathfrak{V}'$ and $\mathfrak{V}'^+$ (Theorem 2 of chap. VI).

III. If u and v are words in Π, then the equation $u = v$ is deducible in the system $\mathfrak{V}'$ if and only if $up^*u^+ = vp^*v^+$ is deducible in the group $\mathfrak{V}'^+$.

Theorems I, II, and III make possible the following method of proving the main result of the work.

Starting from Turing's semigroup $\mathfrak{R}$ for which the problem of deducibility of equations is not solvable, we construct a system $\mathfrak{R}^0$ of type B. Taking for Γ the positive alphabet of the system $\mathfrak{R}^0$ and remarking that $\mathfrak{R}^0$ is defined by a system of equations whose right and left sides are words in Γ, we write these equations in the form (2) and construct on $\mathfrak{R}^0$ the system $\mathfrak{R}^{0'}$ and the group $\mathfrak{R}^{0'+}$. From Theorems I, II, and III there follows the

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truth of the following assertion.

If u and v are words in the alphabet of the semigroup $\mathfrak{R}$, then $u=v$ is deducible in $\mathfrak{R}$ if and only if the equation

$$u\tau pp^*p^+\tau^+u^+ = v\tau pp^*p^+\tau^+v^+$$

is deducible in the group $\mathfrak{R}^{0+}$.

With this the problem of deducibility of equations in

form a normal subgroup N. A system B of generators for N can be built from the products $X_l = X^2 A$, $X_r = A X^2$, where A is a fixed generator in S and X runs through all the other generators in S. The relations among these generators of N may be written in the commutator form $(X_l^{-1}, X_r) = 1$, $(X_l^{-1}, Y_r)(Y_l^{-1}, X_r) = 1$. The author introduces an ordering among the elements X_r, and a corresponding induced ordering among the X_l, and thus defines what he calls regular commutators and normal commutators. Each collection, regular or normal, is shown to form a system of generators for the commutator subgroup of N. G is obtained from N by extending N by an element A of order 3, and using the automorphisms $A X_l A^{-1} = X_r$, $A X_r A^{-1} = X_l^{-1} = X_l^{-1} X_r^{-1}$, to define the extension.   *J. S. Frame* (East Lansing, Mich.).   10/10

NOVIKOV, P.S.;   PETROVSKIY, I.G., akademik, redaktor;   NIKOL'SKIY, S.M., pro-
fessor;   GUROV, K.P., redaktor;   POLYAKOVA, T.V., tekhnicheskiy re-
daktor.

Algorithmic undecidability of the word identity problem in the theory
groups. Trudy Mat.inst. 44:3-140 '55.   (MIRA 8:5)
(Groups, Theory of)

BUKHSHTAB, A.A., prof.; VILENKIN, N.Ya., prof.; PILENKO, N.D., dots;
       NOVIKOV, P.S., prof.; PEREPELKIN, D.I., prof.; LEVIN, V.I., red.;
       KUZYS, I.G., tekhn.red.

[Programs of pedagogical institutes; analytic geometry, mathematical
analysis, methods of mathematical physics] Programmy pedagogicheskikh
institutov; analiticheskaia geometriia, matematicheskii analiz, metody
matematicheskoi fiziki. [Moskva] Uchpedgiz, 1957. 12 p. (MIRA 11:3)

1. Russia (1917-   R.S.F.S.R.) Glavnoye upravleniye vysshikh i
srednikh pedagogicheskikh uchebnykh zavedenii.
       (Geometry, Analytic--Study and teaching)
       (Mathematics--Study and teaching)

AUTHOR: None given

TITLE: Scientists of Higher Educational Institutions - Lenin Prize
               Laureates (Uchenyye vysshey shkoly - laureaty Leninskikh
               premiy)

PERIODICAL: Vestnik Vysshey shkoly, 1957, Nr 5, pp 4-4 (USSR)

ABSTRACT: On April 22nd, 1957 a decree was published concerning the
               distribution of the Lenin Prize for the most outstanding
               works in the fields of science, engineering, literature and
               art. The prizes were given to:
               1) P.S. Novikov, Mathematician, Corresponding Member
               of the AN USSR for his work "The Algorithm In-
               solubility of the Problem of the Identity of Words in the
               Theory of Groups" (ob algoritmicheskoy nerazreshimosti
               problemy tozhdestva slov v teorii grupp). The investigations
               by Novikov were most important in the evolution of modern
               mathematics. He is also a highly qualified teacher and
               holds the Chair of Mathematical Analysis in the Moscow
               Pedagogical Institute imeni V.I. Lenin.
               2) Professor D.V. Nalivkin holding the Chair of Historic-
               al Geology at the Leningrad Mining Academy, for his scient-
               ific direction in composing a geological map of the USSR

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Scientists of Higher Educational Institutions - Lenin Prize Laureates

(scale 1:2,500,000).

5) **K.I. Skryabin, Academician,** a biologist, holding the Chair of Parasitology and Invasion Diseases of Domestic Animals at the Moscow Veterinary Academy received the Lenin Prize for his 12 volume work on "The Thrematods of Men and Animals" (Trematody zhivotnykh i cheloveka), an addition to the literature on helminthology.

4. Professor V.A. Dogel (deceased), a biologist who taught at the University of Leningrad for his work on one-cell organisms, most important in the field of medicine and hydrobiology.

V.F. Shishmarev, Academician, a linguist, holding the Chair of Romance philology at the University of Leningrad for his work "The Historical Morphology of the French Language" (Istoricheskaya morfologiya frantsuzkogo yazyka) and "The Dictionary of the Old French Language" (Slovar staro-frantsuzkogo yazyka).

6) **A.N. Bakulev** - Professor-Surgeon, holding the Chair of the Faculty of Surgery at the Second Institute of Medicine in Moscow, for the organization of the scientific investig-

Card 2/3   ation of acquired and innate cardiac and main blood vessel

Scientists of Higher Educational Institutions - Lenin Prize Laureates

        diseases; for the development of methods for their surgical
        treatment and for the introduction of these methods in
        hospitals.
            In the field of engineering, the Lenin Prize was granted
        to a group of scientists and engineers who headed a great
        collective group of engineer-technicians who created the
        first atomic power station in the USSR. This group in-
        cludes Professor D.I. Blokhintsev a leading physicist at
        the Moscow University.

AVAILABLE: Library of Congress

Card 1/1

KHIL'MI, Genrikh Frantsevich; NOVIKOV, P.S., otvetstvennyy red.; GUROV, K.P.,
        red. izd-va; KOSTYUKOVSKAYA, R.L., tekhn.red.

    [Qualitative methods in problems of n bodies] Kachestvennye metody
    v probleme n tel. Moskva, Izd-vo Akad.nauk SSSR, 1958. 121 p.
                                                (MIRA 11:3)
    1. Chlen-korrespondent AN SSSR (for Novikov)
            (Mechanics, Celestial)

NOVIKOV, P.S.; ADYAN, S.I.

,   On a semicontinuous function. Uch.zap.MGPI 138:3-10 '58.

(MIRA 13:5)

(Functions)

LUZIN, N.N.; NOVIKOV, P.S., otvetstvennyy red.; KELDYSH, L.V., doktor
fiz.-mat.nauk, otvetstvennyy red.; ARSENIN, V.Ya., red.izd-va;
SHEVCHENKO, G.N., tekhn.red.

[Collected works] Sobranie sochinenii. Moskva, Izd-vo Akad. nauk
SSSR. Vol.2. [Descriptive theory of sets] Deskriptivnaia teoriia
mnozhestv. 1958. 744 p.   (MIRA 11:4)

1. Chlen-korrespondent AN SSSR (for Novikov)
        (Aggregates)

NOVIKOV   P. S.

AUTHOR: Maslennikova, V. N.

TITLE: Annual Meeting of the German Mathematics Society
             (Godichnoye sobraniye Germanskoy matematicheskoy
             assotsiatsii)

PERIODICAL: Vestnik AN SSSR, 1958, Vol. 28, Nr 1, pp. 106-107 (USSR)

ABSTRACT: This meeting took place in Dresden from September 8 - 14,
             1957. Besides the mathematicians of the German Democratic
             Republic and the German Federal Republic also guests from
             England, Bulgaria, Hungary, China, Poland, Roumania, USSR
             and from Czechoslovakia took part. The Soviet delegation
             consisted of P. S. Aleksandrov, P. S. Novikov, A. V.
             Bitsadze, V. M. Glushkov and V. N. Maslennikova. The
             program of the meeting was carried out in three groups as
             well as in general meetings. In one group the problems of
             mathematical analysis and of differential equations was
             discussed, in the two other groups various fields of
             mathematics were discussed. Among other matters, E.
             Holde (Leipzig) reported on systems of differential
             equations. Professor Vu (China), K. Borsuk (Poland) and
             P. Aleksandrov (USSR) reported on certain problems of

Card 1/2

Annual Meeting of the German Mathematical Society   30-1-2/39

            algebraic   Topology. A. S. Novikov reported on the
            solution of an important problem of mathematical logic.

AVAILABLE: Library of Congress
            1. Mathematics—Germany

Card 2/2

NOVIKOV, Petr Sergeyevich; ADYAN, S.I., red.; BRUDNO, K.F., tekhn.red.

[Elements of mathematical logic] Elementy matematicheskoi
logiki. Moskva, Gos.izd-vo fiziko-maten.lit-ry, 1959. 400 p.

(MIRA 13:2)

(Logic, Symbolic and mathematical)

'6(')

AUTHOR: Novikov,P.S.,Corresponding Member AS USSR   SOV/ .. . .

TITLE: On Periodical Groups

PERIODICAL: Doklady Akademii nauk SSSR, 1959 Vol 127,Nr 4,pp 74- 752 (USSR)

ABSTRACT: The author considers groups with finitely many generating
            defined by the identity $X^n = 1$, where X is an arbitrary group
            element and n is a natural number (so-called free periodic groups).
            The number n is called exponent of periodicity.
            Principal theorem: Every free periodic group the exponent of
            periodicity of which is ≥ 72, is infinite.
            The proof of the theorem bases on eleven theorems in which the
            properties of so-called Ω transformations and so-called

            periodic and conditional periodic words are discussed. An earlier
            paper of Arshon [Ref 2] and a result of Tartak orally [Ref]
            are used.
            There are 2 Soviet references.

SUBMITTED: May 27, 1959

Card 1 1

NOVIKOV, P.S.; FABERA, Jiri [translator]

Elements of mathematical logic. Pokroky mat fyz astr 5
no.6:629-643 '60.

NOVIKOV, Petr S.

"Algorithmic problems in algebra"
To be presented at the IMU International Congress of
Mathematicians 1962 - Stockholm, Sweden, 15-22 Aug 62

Corresponding Member, Acad. of Sci. USSR; Mathematics Insti.
imeni V. A. Steklov, Acad. of Sci. USSR (1961 position)

KASTAL'SKIY, Aleksandr Aleksandrovich, doktor tekhn. nauk, prof.;
    MINTS, Daniil Maksimovich, doktor tekhn.nauk, prof. Prinimali
    uchastiye: MIKHAYLOV, V.A., kand. tekhn. nauk; NOVAKOVSKIY,
    N.S.; ABRAMOV, N.N., doktor tekhn. nauk, prof., retsenzent;
    NIKIFOROV, G.N., kand. tekhn. nauk, dots., retsenzent; PREGER,
    Ye.A., retsenzent; BULYGIN, A.K., retsenzent; LIPKIN,Ye.V.,
    retsenzent, VOZNAYA, N.F., kand. khim. nauk, retsenzent;
    BELOV, A.N., dots., retsenzent; AGRANONIK, Ye.Z., kand. tekhn.
    nauk, retsenzent; NOVIKOV, P.V., inzh., retsenzent; SHVARTS,
    R.B., inzh., retsenzent; KONYUSHKOV, A.M., kand. tekhn.nauk,
    nauchnyy red.; NIKOLAYEVA, T.D., red. izd-va; GOROKHOVA, S.S.,
    tekhn. red.

[Water treatments for drinking and for industrial uses]Podgo-
tovka vody dlia pit'evogo i promyshlennogo vodosnabzheniia.
Moskva, Gos.izd-vo "Vysshaia shkola," 1962. 557 p.
                                       (MIRA 16:1)
1. Kafedra vodosnabzheniya Leningradskogo inzhenerno-
stroitel'nogo instituta (for Nikiforov, Preger, Bulygin,
Lipkin, Voznaya, Belov, Agranonik).
            (Water--Purification)

NOVIKOV, R.

Sources of formation of working capital in industrial enterprises.
Den.i kred. 18 no.11:33-35 N'60.   (MIRA 13:11)
                    (Finance)

NOVIKOV, R.

The Paris colloquium of Soviet and French economists. Vop. ékon.
no.1:159-160 Ja '61.   (MIRA 13:12)
        (Economic development)
     (Russia—Relations (General) with France)

KNYAZEV, K.; NOVIKOV, R.

More on industrial production cost indices. Fin.SSSR 22   no.5:50-53
My '61.   (MIRA 14:5)
    (Voronezh—Costs, Industrial)   (Moscow—Costs, Industrial)

ACC NR₁   AP7004254   SOURCE CODE: UR/0432/66/000/002/0027/0028

AUTHOR: Novikov, R. I.

ORG: none

TITLE: Device for measuring temperature

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 2, 1966, 27-28

TOPIC TAGS: temperature sensitive element, electronic circuit, resistance bridge,
temperature measurement , resistance thermometer, liquid property, gas property,
computer component, temperature control

ABSTRACT: A device designed for measuring temperature of liquids, gases, or surface
temperatures of solids is described.   The operation of the device is based on the
balanced bridge method of resistance measurement.   One of the bridge arms contains
a KMT-14 thermistor whose resistance changes with temperature and unbalances the
bridge.   Balance of the bridge is re-established with a rheostat which is graduated in
degrees C.   The device is operated by a 2.5—4.5 v battery; some of its characteristics
are: temperature measuring range, 25—130°C for solids and 25—115°C for liquids and
gases; maximum error, ≤3% for solids and ≤1% for liquids and gas; maximum measurement
time, 3 sec; size, 180 x 110 x 50 mm; weight, about 1 kg. The device is widely used
to control the surface temperature of computer components. Orig. art. has: 2 figures.

SUB CODE: 09, 13/   SUBM DATE: none/

Card   1/1   UDC: 536.53:621.382.5

report submitted for the Centennial Meeting of the Scientific Technological Society of

Radio Engineering and Electrical Communications in. A. S. Popov (TEKES), Moscow,

8-12 June.

NOVIKOV, R.H.

Phase analysis of a mixture of Sn, SnO, and SnO$_2$. V. V. Vasil'ev and R. N. Novikov. Uchenye Zapiski Leningrad. Gosudarst. Univ. .... Khim. Nauk No. 12, 15-27 (1953); Referat. Zhur., Khim. 1954, No. 16797.—Two new methods are outlined. One of these is based on the oxidation of Sn with a soln. of Br in CHCl$_3$, thus forming SnBr$_4$ which dissolves. SnO and SnO$_2$ do not react with Br at 50-60° and remain in the residue. They are scpd. by treatment with 18% HCl. The 2nd procedure consists of oxidation of Sn with a neutral soln. of Fe$_2$(SO$_4$)$_3$ in an atm. of CO$_2$. Sn is dissolved as Sn^{4+} while SnO and SnO$_2$ remain undissolved. The soln. is filtered and titrated with KMnO$_4$ in the presence of H$_3$PO$_4$ to det. Fe^{++}. The ppt. is treated on the filter with warm HCl, and the remaining SnO$_2$ is ignited and weighed. The free energy and the equil. const. of the reaction 4Fe^{+++} + Sn → Sn^{4+} + 4Fe^{++} are calcd. from the oxidation-reduction potentials of Fe^{+++}/Fe^{++} and Sn^{4+}/Sn.

M. Hoseh

28(4)
AUTHOR:

SOV/32-25-7-44/40

Novikov, R. N., Head of the Laboratory of the Department of Chemistry of the Leningrad State University imeni A. A. Zhdanov

TITLE:

On the Supply of Laboratories With Devices, Reagents, Vessels
(O snabzhenii laboratoriy priborami, reaktivami, posudoy)
(Replies to the Article by D. M. Frayshtat, Zavodskaya labora-
toriya, Nr 2, 1959) (Otkliki na stat'yu D. M. Frayshtata,
Zavodskaya laboratoriya, No 2, 1959 g.)

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, pp 890-891 (USSR)

ABSTRACT:

The author of this article points out that D. M. Frayshtat's
statement ("Soyuzreaktiv") (in the article mentioned in the
title) that the insufficient supply of laboratories with
devices, reagents, and vessels is due to the fast development
is incorrect. The insufficient supply prevailing at present
is caused by inadequate planning and information. The "Druzh-
naya gorka" factory produces 500 ml glass cups only; they are
of inferior quality than those produced by the "Pobeda Truda"
factory. It is difficult to get certain vessels whereas other
types are produced in excess. Automatic burettes and burettes
with colored scales and other vessels are not provided for

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SOV/32-25-7-44/50

On the Supply of Laboratories With Devices, Reagents, Vessels. (Replies to the Article by D. M. Frayshtat, Zavodskaya laboratoriya, Nr 2, 1959)

at all in the production plan. Moreover, the consumer gets no information by the producer "Soyuzreaktiv" on the articles and sources available. The publication of the "Informatsionnyye pis'ma" (Letters of Information) was stopped; it should be taken up again together with the publication of the respective communications, e.g. in "Zavodskaya laboratoriya".

ASSOCIATION: Laboratoriya khimicheskogo fakul'teta Leningradskogo gosudarstvennogo universiteta im. A. A. Zhdarova (Laboratory of the Chemistry Department of the Leningrad State University imeni A. A. Zhdanov)

Card 2/2

25209
3,056/6.../04../...6.../...
5.25 9...

21.7100

AUTHORS: Ivanov, A. ..., Novikov, S. A.

TITLE.   Expansion shock waves in iron and steel.

PERIODICAL.   Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 4.,
                no. 6. 196., 186 - 1882

TEXT. The authors deal with the effects of an explosion on cylindrical
steel specimens if the explosive charge was applied to their surface.
The diameter of the charge was approximately half its length and equal
to the diameter of the specimen. After the explosion, fragments of
regular geometrical shape and smooth surface were formed at the contact
between specimen and charge. In the experiments with specimens having
the form of triangular or quadrangular right prisms the lower part of
the fragments has the form of a convex spherical surface and the lateral
surface is similar to the surface of a quadrangular or triangular
pyramid. The fragments bounded by a convex spherical surface are formed
in experiments with specimens the height of which exceeds a certain value
at a given charge. If the original height of the specimen is reduced

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25209

S/056/61/046/006/01/051
B125/B202

Expansion shock waves in iron and steel

below this value the fragment is truncated in the plane perpendicular to
its axis. The remaining part of the fragment does not differ from the
fragments with spherical surface ("incomplete fragments"). The fracture
surface is smoother than the lateral surface of the fragment. The
spherical surface of the specimen is formed at a certain distance behind
the front of the compression wave propagating above the specimen. In
none of the experiments made in the same way with copper, brass, and
aluminum fragments like those described here were observed. The formation
of these fragments may be explained by expansion shock waves. The fracture
occurs where the expansion shocks meet. One of these expansion shocks
passes through the specimen behind the compression wave, the other one is
reflected from the free basal plane during compression of this reflection
wave. The data calculated by the method of characteristics are in agree-
ment with the experimental data. These experimental data also give a
natural explanation of the formation of the fragment by interaction of
the expansion shock in the lateral wave in the specimen and of the expan-
sion wave following the compression wave. The mechanism of the formation
of a spherical surface of the fragment has hitherto not been explained.
The experimental data indicate the existence of a relationship between the

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Expansion shock waves in iron and steel.

formation of this surface and the compression shocks which propagate
behind the front of the compression wave. According to the authors the
formation of fragments described here is the experimental proof of the
existence of compression shock waves in such substances as undergo
polymorphous transition in a shock-type load. The authors thank
Yu. I. Tarasov for his discussion of the results and for the calculation
of the collision of the expansion jumps as well as Professor Ya. B.
Zel'dovich and Professor L. V. Al'tschuler for their interest and useful
advice. There are 1 figure and 4 references. 1 Soviet-bloc and 2 non-
Soviet-bloc. The two references to English-language publications read
as follows. D. Bancroft, E. Peterson, S. Minshall J. Appl. Phys. 27, 291,
1956; W.E. Drummond. J. Appl. Phys. 28, 440, 1957.

SUBMITTED.   April 28, 1961

Card 3/3

188200   2406 40I6 1327

33364
S/181/62/004/...
B... B...

AUTHORS: Ivanov, A..., ...viatov, S A.. and Tarasov, Yu .

TITLE: Splitting off effects in iron and steel. caused ...
action of rarefying shock waves

PERIODICAL: Fizika tverdogo tela, v. ., no. 1, 1962, ... - ...

TEXT: Shock waves were produced in cylindrical specimens using the set ...
shown in Fig. 2. The specimens were destroyed in a very characteristic
manner (Fig. 4). The height of the conical cores could be changed by
varying the stresses applied. The shape of the broken specimens changes
substantially at a given stress if their length was below a definite value
Fig 7). These results were found on Armco iron. CT3 (St 3), 40 X (40Kh.,
and 30 XГCA (30KhGSA) steels No such splitting off effects were observed
on copper, brass, and aluminum These effects are attributed to the inter-
action of rarefying shock waves under explosion-like stresses with pressures
above the $\alpha \rightarrow \gamma$ transformation pressure. The wave contour propagates in
steps (Fig. 10). The two compression shock waves D_1 and D_2 are followed by
a rarefying shock wave D_3. A second rarefying shock wave appears after

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33364

S/181/62/004/ 01/04

B104/B112

Splitting off effects in iron .

reflection. The fracture develops in the very narrow zone in which the
rarefying shock waves meet. Assuming that the pressure-volume curve
coincides with the Hugoniot adiabatic curve under stress, the conditions
for the existence of rarefying shock waves are formulated. Academician
Ya. B. Zel'dovich and Professor L. V. Al'tshuler are thanked for interest
and advice. There are 7 figures, 2 tables, and 6 references: 4 Soviet
and 2 non-Soviet. The two references to English-language publications
read as follows: D. Bancroft, E. Peterson, S. Minshall, J. Appl. Phys.
291, 1956; W. E. Drummond, J. Appl. Phys. 2n, 669, 1957

SUBMITTED: August 18, 1961

Fig. 2   Experimental setup.
Legend: 1) detonation tube; 2) additional load at the end at which a
plane shock wave develops; 3) principal load; 4) specimen dimensions in
mm

Fig. 4   Schematic diagram of the core.

Fig. 7   Schematic diagram of the core.

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S/181/63/005/001/042/064
B108/B180

AUTHORS: Ivanov, A. G., Novikov, S. A., and Sinitsyn, V. A.

TITLE: Elastoplastic waves in iron and steel under blast

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 269-278

TEXT: A method for the direct and continuous recording of the rate of
movement of the free surface of a specimen under blast was developed
earlier (A. G. Ivanov, S. A. Novikov. Pribory i tekhnika eksperimenta -
Experimental equipment and techniques -). A special capacitor pickup is
used, where the free surface of the sample acts as one of the capacitor
plates. The possible types of elastoplastic waves are examined in the
light of the Hugoniot P-V shock compression adiabates of the materials.
The results obtained with Armco iron and several steels showed that the
elastoplastic wave parameters depend on the material, length of sample and
length of charge. The results agree with those of other publications
(e.g. S. Minshall. Journ. Appl. Phys., 26, 463, 1955). The already known
increase in yield point with loading rate (brisance of explosive) was
observed. Pressure attenuation was observed in the front of the elastic

Card 1/2

Elastoplastic waves in iron ...

S/181/63/005/001/042/064
B108/B180

wave as it passed through the specimens. There are 10 figures and
2 tables.

SUBMITTED: August 10, 1962

Card 2/2

S/120/63/000/001/034/072
E039/E420

AUTHORS: Ivanov, A.G., Novikov, S.A.

TITLE: A capacity probe method for recording instantaneous
              velocities of moving surfaces

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1963, 135-138

TEXT: The proposed method of using capacity probes for continuous
recording of instantaneous velocities of moving surfaces differs
from earlier capacity probes which could only record a displacement
of a moving surface.   The theory of the method is outlined and the
various parts of the apparatus are described; in particular the
measuring condenser consists of a 40 mm diameter copper disc
surrounded by a guard ring.   Distance between plates is 2 to 10 mm
which gives a capacity of 1 to 5 pf.   the applied voltage is
obtained from a 2 μf condenser charged to 600 to 900 V and the
motion is recorded on a double beam oscilloscope.   A study of the
parameters of elastic waves in metals is described as an example
of the use of this method.   The method allows the investigation
of the profile of elastic waves in different materials.   In the
case of aluminum alloy Д-16 (D-16) and copper M-1, the pressure
Card 1/2

A capacity probe method ...

S/120/63/000/001/034/072
E039/E420

in the elastic wave grows more slowly than in steel and the maximum value of the velocity of the free surface is 40 and 4 m/sec respectively.   There are 5 figures.

SUBMITTED: March 3, 1962

Card 2/2

L 13951-65   EWT(1)/EWP(m)/EWT(m)/EWP(t)/EWP(b)/FCS(k)/EWA(h)   Pd-1/P1-4
SSD(b)/AFWL/AEDC(a)/ASD(f)-2/SSD/AFETR JD

ACCESSION NR: AP4046392   S/0056/64/047/003/0814/0816

AUTHORS: Novikov, S. A.; Divnov, I. I.; Ivanov, A. G.

TITLE: Investigation of the structure of shock compression waves
in iron and steel

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47,
no. 3, 1964, 814-816

TOPIC TAGS: shock wave propagation, phase transition, first order
phase transition, iron, steel

ABSTRACT: The pressure pulse which propagates in Armco iron and in
steels of various grades in the form of two consecutive compression
waves was investigated in a pressure range up to 360 katm by a ca-
_____ ____ _____ _____ reported by two of the authors

(Ivanov and Novikov, PTE no. 1, 135, 1963). In addition to permitting
a detailed study of the two-wave system profile, this method yields

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L 13951-65

ACCESSION NR: AP4046392   O

data on the phase transition kinetics under shock compression. The
two-wave system profile consists of three regions: 1 -- first shock
wave, 2 -- transition region, 3 -- second shock wave, representing
the higher pressure. The presence of the transition region is shown
to be due to relaxation phenomena occurring during the phase transi-
tion in the metal. A first approximation to the relaxation process
is obtained by a qualitative analysis of the mutual relations be-
tween the adiabats of the first and second shock waves and the shock-
inducing striker adiabat on the pressure-velocity diagram. Relaxa-
tion also produces a pressure peak in the first shock wave (approx.
5 katm high and 0.1--0.2 µsec in duration). The transition region
duration is estimated at 0.2--0.3 µsec. This duration decreases
somewhat if the sample is heated first to 450C. Orig. art. has:

L 13951-65
ACCESSION NR: AP4046392

SUBMITTED: 01Apr64   ENCL: 00

SUB CODE: OP, ME   NO REF SOV: 004   OTHER: 002

Card 3/3

L 08777-67   EWT(m)/EWP(w)/EWP(t)/ETI   IJP(c)   JD/JH
ACC NR: AP6023704   SOURCE CODE: UR/0126/66/021/004/0608/0615

AUTHORS: Novikov, S. A.; Divnov, I. I.; Ivanov, A. O.   +8

ORG: none

TITLE: A study of the failure of steel, aluminum, and copper under shock loads

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 4, 1966, 608-615

TOPIC TAGS: material strength, impact test, impact strength, explosive, copper, aluminum alloy/ D16 aluminum alloy, M1 copper

ABSTRACT: The authors present the result of a study of the critical ultimate stresses during shock loading of several grades of steel, aluminum alloy D16, and copper M1. The limiting stresses were studied by a known method based on measurements of the rate of movement of the far cleavage surface (the free surface of the specimen). The presence of mechanical strength in the material leads to the phenomenon in which, after the shock wave is reflected from the free surface of the specimen, the rate of surface movement decreases from a maximal value v_0 to some value v_1. The critical stress is related to the difference of these two velocities according to the equation

$$ p_{кр} = p_0 c_0 \frac{v_0 - v_1}{2} $$

UDC: 534.222.2/539.37

Card 1/2

1. 08777-67

ACC NR: AP6023704

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where ρ_0 is the initial density of the material and C_0 is the "Plastic" speed of sound in an infinite medium. Testing was performed on disc-shaped specimens 120--140 mm in diameter and 6--40 mm thick. A cylindrical explosive charge was placed on the specimen or, alternatively, a metallic impact device was used. Measurements were made of the variation of the rate of free surface movement as a function of time. It was found that the experimental variation was significantly different from the theoretical variation obtained in the assumption of instantaneous rupture of the specimen in a given section. From the test data and a revised hypothesis of the failure mechanism the authors propose a method of mathematically approximating the time until failure. Orig. art. has: 6 tables, 5 equations, and 1 figure.

SUB CODE: 11/   SUBM DATE: 28Jan65/   ORIG REF: 012/   OTH REF: 004

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Card 2/2   nat

NOVIKOV, S.

On the basis of tecnnological progress. Kust.ugl. 9 no.1:
9-10 Ja '60.   (MIRA 13:6)

1. Starshiy inzhener Gosplana SSSR.
   (Coal mines and mining)   (Automatic control)

NOVIKOV, S., inzh.

Widen the road for technical progress. Izvest.ugl. 9 no.12:3-4 D '60.   (MIRA 13:12)

1. Gosplan SSSR.
(Coal mines and mining)

NOVIKOV, S.A.

Coal mining industry at the Exhibition of the Achievements of the National Economy of the U.S.S.R. Ugol' 36 no.10:51-52 ('62.
(MIRA 14:1.)

(Coal mining machinery--Exhibitions)
(Moscow--Exhibitions)

NOVIKOV, S.

Coal mining industry of the U.S.S.R. during the fourth year of
the seven-year plan. Sov.shakht. 11 no.2:2-3 F '62. (MIRA 15:1)
(Coal mines and mining)

NOVIKOV, J.A., gornyy inzh.

The coal industry at the Exhibition of the Achievements of
the National Economy of the U.S.S.R. in 1964. Ugol' 39 no.5:
77-78 My '64.   (MIRA 17:8)

L 15276-66   EWT(m)/T/EWP(t)/EWP(k)/EWP(b)   JD/HW
ACC NR: AP5018864   SOURCE CODE: UR/0126/65/020/001/0133/0135

AUTHOR: Novikov, S. A.; Divnov, I. I.; Ivanov, A. G.

ORG: none

TITLE: Characteristics of the impact zone in iron and steel [paper presented at the conference on high pressures in the Institute of Chemical Physics AN SSSR, Moscow, May 1963]

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 133-135

TOPIC TAGS: explosive forming, phase transition, iron, steel, shock wave front, detonation wave

ABSTRACT: Previous studies have shown that specimens of iron and steel subjected to impact compression have two characteristic zones which differ with respect to hardness by a factor of 2-3. The boundaries of these regions are shown up clearly by etching microsections in special solutions. The harder area is called the impact zone. An experimental study of the conditions under which this zone is formed indicates a direct connection between the impact zone and phase transition during

                              UDC: 620.178.2

Card 1/2

                              2

L 15276-66
ACC NR: AP5018864 $\sqrt{5}$

impact compression of iron and its alloys. The sharply defined boundary of the im-
pact zone may be due to a certain critical pressure at the shock wave front. This
pressure is assumed to be that for phase transition in iron (131000 at). Time-
travel curves are given for flow in a semi-infinite specimen of iron from which a
plane detonation wave is reflected. These curves show that a stepwise reduction in
pressure may take place at the second shock wave front if this wave is overtaken by
an expansion shock propagating from the "charge-specimen" contact surface. Special
experiments were conducted to verify this hypothesis. The calculated points at
which the expansion shock should overtake the second shock wave front for charges
of various lengths agree satisfactorily with the experimentally determined boundar-
ies of the impact zone. Orig. art. has: 3 figures.

SUB CODE: 20, //   SUBM DATE: 15Jul64/   ORIG REF: 005/   OTH REF: 005

explosive forming /8
                   44 55

Card 2/2

L 51503-66   EWT(d)/EWT(m)/EWP(w)/ETA(d)/T/EWP(t)/EWP(k)   IJP(c)   JD/HW/EM
ACC NR: AP5007353   SOURCE CODE: UR/0126/66/021/002/0252/0255

AUTHOR: Novikov, S. A.; Divnov, I. I.; Ivanov, A. G.

ORG: none

TITLE: Phase transformation in iron subjected to impact compression

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 2, 1966, 252-256

TOPIC TAGS: iron compression, impact compression, explosive compression, phase transformation, compression induced transformation

ABSTRACT: Disk-shaped specimens of Armco iron and St3, U8, 45 and 40Kh steels 120 mm in diameter and 20—50 mm thick were subjected to impact compression by detonation of an explosive charge on the disk surface or by the impact of aluminum plate 2 mm thick accelerated by an explosion to a velocity of 5.6 km/sec. The experiments were performed at 273—773K. A typical pressure-time curve (see Fig. 1) obtained in one of the experiments (at 603K) shows two shock waves with a relaxation period, τ, caused by the transformation of α-iron into high-pressure modification ϵ-iron. The magnitude of τ at 273—283K varied from 0.25 to 0.40 μsec; with increasing temperature τ becomes shorter. It is noted that under conditions of hydrostatic compression, the α-to-ϵ transformation requires several hours. The pressure at which the transformation occurs at 300K was found to be roughly the same for all the materials tested:

Card 1/2   UDC: 539.292:548.53

L 21503-66

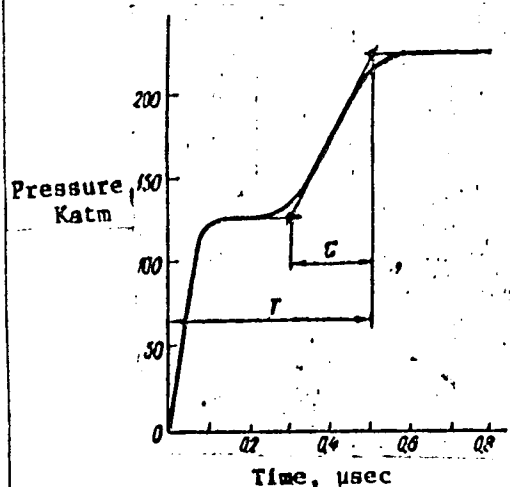ACC NR: AP6007353   O

Fig. 1. Pressure-time curve in impact
compression of an St3 steel specimen

147,000 atm. Carbon content appears to have little or no effect, which is explained
by a very short period of relaxation under conditions of impact compression. No
diffusion can occur in such a short time, and ferrite acts as an independent phase
regardless of the carbon content. Orig. art. has: 2 figures and 3 tables.   [DV]

SUB CODE: 11/ SUBM DATE: 04May65/ ORIG REF: 011/ OTH REF: 010/ ATD PRESS:4222

Card 2/2

L   18832-66   EWT(m)/EWP(t)/EWP(k)   IJP(c)   JD/HW
ACC NR: AP6003485   (A)   SOURCE CODE: UR/0020/66/166/001/0067/0070

AUTHOR: Al'tshuler, L. V.; Novikov, S. A.; Divnov, I. I.

ORG: none

TITLE: The relationship between critical breaking point and rupture time in ex-
plosively loaded metals

SOURCE: AN SSSR. Doklady, v. 166, no. 1, 1966, 67-70

TOPIC TAGS: explosive forming, copper, mechanical shock resistance, ductility,
rupture strength, shock wave velocity, pressure gradient

ABSTRACT: Ductile cleavage during impact loading in copper was studied. The study
was undertaken in view of the fact that previous studies on cleavage have failed to
provide clear criteria for rupture. Copper sheets (between 6 to 10 mm thick) were
explosively formed under different loading conditions resulting in a variation of
critical rupture pressure from 35.5 to 78·10^3 atm. A theoretical analysis is pre-
sented for the relationship between critical breaking point and rupture time based
on plastic shock wave velocity and its interaction with surface barriers. Ductile
cleavage resulting from explosive loading is graphed. A graph of time as a func-

UDC: 539.411.5

Card 1/2

L 18832-66

ACC NR: AP6003485

tion of Lagrange coordinate distance is given in which the shock wave is shown in various positions for various conditions, including ductile cleavage formation; rupture time was determined from this graph by drawing a line parallel to the time axis from the minimum in the rupture curve to the intersection with the negative pressure wave line (characteristic of the boundary). Similar graphs were made for clad metals, considering the effects of the collisions of the shock waves with the interfering boundaries. A detailed analysis was given for copper clad with aluminum with an additional plot of pressure as a function of wave velocity. The critical rupture pressure was calculated by means of the expression

$$P_{cr} = \rho_0 c_0 (w_0 - \bar{w}_0)$$

where ρ_0 and c_0 are the values of the density and speed of sound in the material; w_0 and $\bar{w}_0$ are the initial and average velocities of the shock wave at the free surface. Test data on explosively deformed copper sheets are presented in which the critical rupture pressure was calculated from the above equation for various charge distributions, varying sheet thicknesses and wave velocities. The dependence of the rupture time on the value of the negative pressure (reflected wave) was plotted. It is concluded that the resistance of the metal to rupture is not a function of its strength but is dependent on the pressure gradient and the shock wave velocity. Orig. art. has: 4 figures, 2 tables.

SUB CODE: 11/   SUBM DATE: 19Apr65/   ORIG REF: 006/   OTH REF: 003

Card 2/2   vmb

L 29321-66   EWT(d)/EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k)   IJP(c)   JD/HW/EM

ACC NR: AP6010410   (A,N)   SOURCE CODE: UR/0126/66/021/003/0452/0460

AUTHORS: Novikov, S. A.; Sinitsyn, V. A.; Ivanov, A. G.; Vasil'yev, L. V.

ORG: none

TITLE: Elastoplastic properties of a number of metals under destructive loadings

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 3, 1966, 452-460

TOPIC TAGS: elastic property, material testing, destructive testing, impact loading, elastoplasticity, shock wave, material flow, compression wave/ M1 copper, D1 aluminum alloy, D16 aluminum alloy, LS59-1 brass

ABSTRACT: The results of testing copper, brass, and two aluminum alloys under destructive loads are presented. The test method used is that described by A. G. Ivanov, S. A. Novikov, and V. A. Sinitsyn (FTT, 1963, 5, 269). The process of formation of a system of two compression waves (elastic and plastic) is shown in Fig. 1. The thin lines on the diagram are the characteristics of the process. D_1 and D_2 are respectively the first and second shock waves, t_A is the moment in time when the pressure on the surface of the specimen reaches a value corresponding to the adiabatic break-off point. II is the domain of constant flow. In the domains I and III the flow is completely determined by parts of the adiabatic above and below the break-off point. The limiting boundaries of domain II are the characteristics corresponding to

Card 1/3   UDC: 534.222.2/539.37

L 29821-66

ACC NR: AP6010410

Fig. 1. Diagram of the flow in
length-time coordinates for a
system of two compression waves
--elastic and plastic.
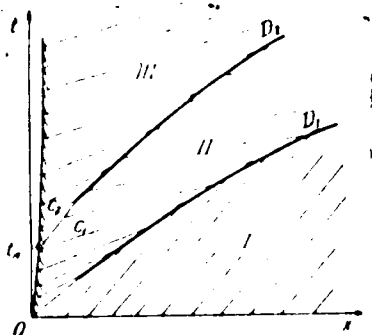
the two speeds of sound at the break-off point. Tests were conducted on specimens
made of M1 copper, aluminum alloys D1 and D16 and LS59-1 brass. The time variation
of the rate of deformation over very short time intervals is plotted in Fig. 2. In
discussing the test results, the authors note that beyond the front of the elastic
wave in the studied materials there occurs a more or less clear appearance of a
domain of increased pressure in simple wave compression. This phenomenon is related
to the flow limits of the materials and to the mechanical properties and deformation
rates.

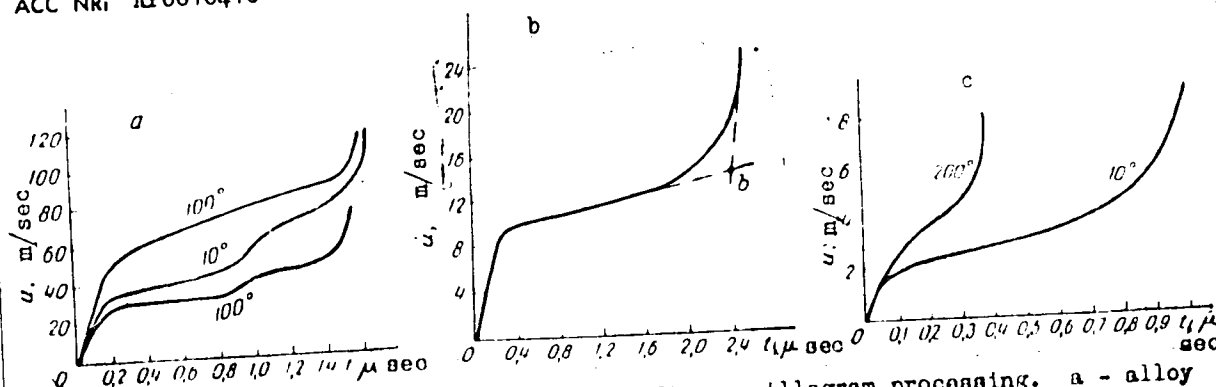Card   *2/3

L 29821-66
ACC NR₁ AP6010410

Fig. 2. Typical variation of u(t) obtained after oscillogram processing. a - alloy
D16 (specimen height 30 mm); lower curves obtained for annealed specimens (weak
plastic waves are visible), upper - tempered specimens; b - brass (specimen height
80 mm); o - copper (specimen height 30 mm).

Orig. art. has: 6 tables, 6 figures, and 3 equations.

SUB CODE: 11/ SUBM DATE: 29Apr65/ ORIG REF: 004/ OTH REF: 011

Card 3/3

NOVIKOV, S.A.

Significance of the Nesterov test in the clinical picture of osteo-
articular tuberculosis in children. Probl.tub. 38 no.8:50-58 '60.
(MIRA 14:1)

(BONES—TUBERCULOSIS) (CAPILLARIES)

NOVIKOV, S.B.

Detection of methyl alcohol in biological material by the reaction
of the formation of methyl ester of salicylic acid. Sud.-med.eks-
pert 2 no.2:20-22 Ap-Je '59.   (MIRA 13:6)

1. Byuro sudebnomeditsinskoy ekspertizy (nachal'nik L.S. Veli-
sheva), Moskva.
                   (WOOD ALCOHOL--ANALYSIS)

NOVIKOV, S.B.

Isolation and detection of thiophos in biological material in medicolegal investigations. Sud.-med.ekspert. 3 no.1:45-47 Ja-Mr '60.   (MIRA 13:5)

1. Moskovskoye gorodskoye byuro sudebnomeditsinskoy ekspertizy (nachal'nik L.S. Velisheva).
                        (PARATHION)

NOVIKOV, S. D.

Novikov, S. D.

"Theoretical and Experimental Investigation of the Mechanism of Supply Systems for Automatic Special-Purpose Presses." Min Higher Education USSR. Moscow Machine-Tool and Tool Inst imeni I. V. Stalin. Moscow, 1955. (Dissertation for the Degree of Candidate in Technical Science)

So: Knizhnaya letopis', No. 2 , 2 July 195

NOVIKOV, S.D., kand.tekhn.nauk, dotsent

Experimental analysis of the performance of the hydraulic rotor of an automatic transfer line. Trudy TMI no.16:32-43 '62. (MIRA 17:2)